DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 1.28

WELDING INSPECTION REPORT

Resident Engineer: Siegenthaler, Peter
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-019172
Date Inspected: 04-Jan-2011

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: American Bridge/Fluor Enterprises, a JV

OSM Arrival Time: 1000
OSM Departure Time: 1830
Location: Job Site

CWI Name:	Gary Ersham and Fred Van Hoff			**CWI Present:**	☑ Yes	☐ No	
Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: Orthotropic Box Girder

Summary of Items Observed:

Caltrans Office of Structural Material (OSM) Quality Assurance Inspector (QAI) Joselito Lizardo was present at the Self Anchored Suspension (SAS) job site as requested to perform observations on the welding of components for the San Francisco Oakland Bay Bridge (SFOBB) Project.

At OBG 8W/9W side plate ‘E1’ inside, QA randomly observed ABF/JV qualified welder Sungtao, Huang ID # 3794 continuing to perform CJP groove (splice) welding root then fill pass on the splice butt joint. The welder was observed perform automatic welding in the 3G (vertical) position utilizing a dual shield Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1/16” diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-3042B-1. The joint being welded had a single V-groove butt joint with backing bar. The splice joint was preheated and maintained to greater than 150 degrees Fahrenheit using Miller Proheat 35 Induction Heating System heater blankets located at the opposite side of the plate prior/during welding. Prior welding, QA performed a fit up verification on the splice butt joint. The fit up alignment was noted less than 2mm and the root gap was 10mm. During welding, ABF Quality Control (QC) Fred Von Hoff was noted monitoring the welding parameters of the welder. At the end of the shift, welding of the fill passes on the splice butt joint was not completed and should continue tomorrow.

QA randomly observed ABF/JV qualified welders Rory Hogan (ID #3186) and Jeremy Dolman (ID #5042) perform CJP groove back welding fill pass on Orthotropic Box Girder (OBG) 7W/8W side plate ‘C1’ outside. The welders were observed welding in the 4G (overhead) position utilizing a dual shield Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1/16” diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-3110-4. The welders were using a track mounted welder holder

assembly that was remotely controlled. The joint being welded has the backing bar gouged using the Esab Plasma Arc machine and was ground smooth. The gouged and ground splice butt joint was also Non Destructive Testing (NDT) tested using the Magnetic Particle Testing (MT). The splice joint was preheated to greater than 150 degree Fahrenheit using Miller Proheat 35 Induction Heating System located on top of the plate prior welding and maintained by moving the heater blanket at the side of the plate being welded during welding. The vicinity was properly protected from wind. During welding, ABF Quality Control (QC) Gary Ersham was noted monitoring the welding parameters of the welder. At the end of the shift, fill pass welding was still continuing which should remain tomorrow.

At OBG 8W/9W top deck plate 'A3' outside, QA randomly observed ABF/JV qualified welder Wai Kitlai perform CJP repair welding. The welder was noted welding in 1G (Flat) position utilizing Shielded Metal Arc Welding (SMAW) with 1/8" diameter E7018H4R electrode implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1001 Repairs. The three repairs were excavated to a boat shape profile and were tested with Magnetic Particle Testing (MT) prior welding. During welding, ABF QC Steven Mc Connell was noted monitoring the welder and his welding parameters. Welding parameter measured at the time of welding was 130 amperes which appears in compliance to the WPS. The locations of the repairs were noted below;

	Location	Y-dimension	Length	Width	Depth	Remarks
1.	A3	1220mm	120mm	30mm	17mm	Completed
2.	A3	445mm	105mm	30mm	15mm	Completed
3.	A3	2242mm	100mm	30mm	14mm	In progress

At OBG 6W/7W edge plate 'B1' inside, QA randomly observed ABF/JV qualified welder Jorge Lopez perform CJP groove welding repair. The welder was observed welding in the 3G (vertical) position utilizing Shielded Metal Arc Welding (SMAW) with 5/32" diameter E7018H4R electrode implementing welding procedure ABF-WPS-D15-1001-Repairs. The repair excavation which was located at Y-dimension 0mm had a boat shape excavation profile of 150mm long x 30mm wide x 17mm deep was preheated to more than 140 degree Fahrenheit using propane gas torch prior welding. During the shift, ABF QC Jesse Cayabyab was noted monitoring the welder. Prior welding, ABF QC Jesse Cayabyab was also observed performing Magnetic Particle Testing (MT) on the excavation. At the end of the shift, repair welding at the location mentioned above was completed.

The following lifting lug access hole (LLAH) infill plate to top deck plate welding activities was observed;
1. At OBG 1W-PP11-W4- #3 inside – ABF welder Mike Jimenez was observed continuing to perform 4G Shielded Metal Arc Welding (SMAW) back welding fill pass on the infill plate to top deck plate butt joint. The welder was noted using 1/8" diameter E7018H4R electrode. During the shift, fill pass welding was completed and the welder has moved to 1W-PP8.5-W4-#3 LLAH and performed excavation on the repair area then welded. Repair welding on this access hole was completed at the end of the shift.

2. At OBG 2W-PP17-W3- #4 outside - ABF welder Darcel Jackson was observed fit up/tack welding the infill plate to top deck plate. After the completion of the fit up, ABF QC Mike Johnson verified the acceptable alignment. QA has concurred the fit up alignment and the welder welded the root pass and followed by fill to cover pass. The welder was noted using 1/8" diameter E7018H4R electrode during root pass welding and used 3/16" diameter E7018H4R electrode during fill and cover pass welding.

The welders working on the lifting lug access hole mentioned above were noted welding/implementing Caltrans approved welding procedure specification ABF-WPS-D15-1070 & ABF-WPS-D15-1110A. The welders and their welding parameters were monitored by ABF QC Mike Johnson.

At OBG 6E-PP46.5-E2-TS transverse stiffener inside, this QA performed 10% MT verification on the welded splice butt joint. QA found no relevant indications during the verification. Please see TL-6028 report for more information.

Summary of Conversations:

No significant conversation occurred today.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact SMR Nina Choy, 510-385-5910, who represents the Office of Structural Materials for your project.

Inspected By:	Lizardo,Joselito	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer